

ROUNABOUTS

Alternate Intersection Design

Why a Roundabout?

- As population and travel has increased traditional designs have become insufficient in providing:
 - a) Capacity
 - b) Safety
- Primary focus: Reduces head on and tee bone crashes

Key Characteristics

- Entering vehicles yield to circulating vehicles
- Entries are deflected
- Use of splitter islands
- Typical size (outside diameter)
 - a) 110' – 140' Single lane
 - b) 150' – 220' Double lane
- Can be used along a corridor or as isolated

Capacity

- Highly influenced by entry width, secondarily effected by diameter
- Single lane
 - a) Approximately 1100 vph entry capacity
 - b) Approximately 1500 vph entry + circulating capacity
- Double lane
 - a) Approximately 2200 vph entry capacity
 - b) Approximately 3000 vph entry + circulating capacity
- Typical capacity estimation methods
 - a) RODEL (UK) – Empirical Method
 - b) ARCADY (UK) – Empirical Method
 - c) SIDRA (Australian) – Gap Based
 - d) VISSIM, PARAMICS, SIMTRAFFIC – Simulation
 - e) Coming to HCM/HCS 2010 (Based on NCHRP 572)

Safety

- Reduces vehicular speed at intersection
- Reduces possibility of right angle collisions at intersections
- 35% reduction in total crashes and a 76% reduction in crashes causing injuries or fatalities

Locations

- Indiana has 150 + roundabouts, 50+ are in Carmel, Indiana
- There are 150 to 250 roundabouts built in the US each year
- As of December of 2009, the US recorded 2300 modern roundabouts

Major Disadvantages

- Driver unfamiliarity
- Can require large R/W area
- Challenging for visually impaired pedestrians